

REMARKS/ARGUMENTS

Status of the claims

Claims 1, 3-7, 9-19, 21-29, 31-34, and 36-37 are pending in the subject application, of which only claims 1 and 18 are independent. Claims 1, 3-7, 9-17, and 33 are allowed. Claims 2, 8, 20, 30, and 35 have been previously canceled without prejudice or disclaimer. Claim 18 has been amended to correct a minor informality without narrowing or otherwise affecting the scope of the claim or of any element recited therein. Claim 31 has been amended to depend from independent claim 18 in view of the previous cancellation of claim 30.

No new matter has been added.

Reconsideration of the subject application in view of the following remarks is hereby respectfully requested.

Overview of the Office Action

Claim 31 has been objected to due to a minor informality, which informality has been corrected in the manner suggested by the Examiner.

Claims 18-19, 21, 31, and 36-37 have been rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,504,180 (Heremans).

Claims 22-29 have been rejected under 35 U.S.C. §103(a) as unpatentable over Heremans.

Claim 32 has been rejected under 35 U.S.C. §103(a) as unpatentable over Heremans in view of U.S. Patent No. 6,515,310 (Yamazaki).

Claim 34 has been rejected under 35 U.S.C. §103(a) as unpatentable over Heremans in view of U.S. Pub. No. 2002/0134986 (Kamemura).

Patentability of the Claimed Invention

Independent Claim 18

Independent claim 18 recites, *inter alia*, the following:

- (i) the reflective layer being applied on a carrier substrate or the reflective interface being formed by a carrier substrate, and
- (ii) the convex elevations tapering in a direction away from the first main surface of the multilayer structure to the reflective layer or interface.

The above recited claim features of independent claim 18 are neither taught nor suggested by Heremans as detailed below.

(i)

In the Office Action, the Examiner interprets the dielectric coating 22 in Heremans as the “carrier substrate” recited in independent claim 18 (see page 2 of the Office Action). Applicants respectfully disagree. Heremans’ dielectric coating 22 is no more than a coating layer which is applied to a metal layer 23, which is in turn attached or bonded to a carrier 20 (see col. 10, ll. 54-66 of Heremans), and Heremans thus does not teach the “carrier substrate” recited in independent claim 18.

Heremans teaches that the dielectric coating 22 is a coating layer applied to the metal layer 23 to form a mirror in the light-emitting diode of Heremans. Neither the dielectric coating 22 nor the metal layer 23 are described taught or suggested in Heremans as being a “carrier substrate”, and neither are they such.

As those skilled in the art are well aware, the term “substrate” denotes a base on which components of a device are defined or mounted. A carrier substrate identifies a base that is suited to mechanically support and carry the components (e.g., a reflective layer) that are applied to such a carrier substrate. For example, Heremans teaches a carrier substrate 17 on which a layer structure is deposited (see col. 10, ll. 8-9 of Heremans).

The dielectric coating 22 in Heremans, on the other hand, cannot be considered to be a carrier substrate. Heremans' dielectric coating 22 does not provide a base for other components in the light-emitting diode of Heremans. Nor does Heremans' dielectric coating 22 provide sufficient mechanical support to any components of Heremans' light-emitting diode. As noted above, the dielectric coating 22 in Heremans is simply a coating which is applied onto the metal layer 23, which is in turn attached or bonded to a carrier 20 (see col. 10, ll. 54-66 of Heremans). Consequently, the dielectric coating 22 is no more than a coating layer -- not surprisingly, the very language used by Heremans to describe it. One skilled in the art would accordingly not regard or view or understand Heremans' dielectric layer 22 as the "carrier substrate" which is recited in independent claim 18.

Heremans, therefore, quite plainly does not teach or suggest "the reflective layer being applied on a carrier substrate or the reflective interface being formed by a carrier substrate," as expressly recited in Applicants' independent claim 18. Independent claim 18 thus patentably distinguishes over Heremans for at least this reason.

(ii)

The Examiner further alleges in the Office Action that Heremans' textured or roughened surface 41 tapers in a direction away from the first main surface of the multilayer structure to the metal layer 19 (see page 3 of the Office Action). Applicants submit that this interpretation is not supported by the express explanations in the Heremans disclosure.

As seen in Fig. 11 of Heremans, layer 12 of Heremans' light-emitting diode has a textured or roughened surface 41 formed with rectangular shaped projections. Although these projections may be viewed as projecting toward the reflective layer 19, they are quite clearly not tapered, much less tapered toward the metal layer 19. Indeed, there is no teaching or suggestion

in Heremans that the projections on the textured or roughened surface 41 are tapered in any direction.

In the Examiner-cited text of Heremans, the reference describes a tapered mesa edge (see, e.g., col. 11, ln. 44). However, this mesa edge refers to the transparent or non-transparent edges that are adjacent or abutting each other to form a triangular cross-sectional shape (see, e.g., col. 11, ll. 29-38 and Fig. 3). For example, in Fig. 3 of Heremans, a mesa edge 38 is depicted as the slanted mirror surface (see, e.g., col. 11, ll. 56-57 and col. 12, ln. 2). In other words, Heremans' tapered mesa edge 38 is neither the textured or roughened surface 41 nor the rectangular shaped projections formed on the textured or roughened surface 41. The rectangular shaped projections on the textured or roughened surface 41 in Heremans are not tapered, in contrast to "the convex elevations" recited in Applicants' independent claim 18.

Heremans, therefore, does not teach or suggest "the convex elevations tapering in a direction away from the first main surface of the multilayer structure to the reflective layer or interface," as recited in independent claim 18. Independent claim 18 thus patentably distinguishes over Heremans for the above additional reason.

In view of the foregoing, the 35 U.S.C. § 102(e) rejection of independent claim 18 should be reconsidered and withdrawn.

Dependent Claims 19, 21-29, 31-32, 34, and 36-37

Claims 19, 21-29, 31-32, 34, and 36-37, which depend from independent claim 18, incorporate all of the limitations of independent claim 18 and are, therefore, deemed to be patentably distinct over Heremans for at least those reasons discussed above with respect to independent claim 18.

In addition, these dependent claims each include features which serve to still further distinguish the claimed invention over the applied art.

Conclusion

In view of the foregoing, reconsideration, withdrawal of all rejections, and allowance of all pending claims are respectfully solicited.

Should the Examiner have any comments, questions, suggestions, or objections, the Examiner is respectfully requested to telephone the undersigned to facilitate an early resolution of any outstanding issues.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our PTO Deposit Account No. 03-2412.

Respectfully submitted,
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